PRESENCE SCRIPT

Introduction

Sahil - *Good morning everyone! Have you ever seen our teachers juggling countless tasks? Among them, what do you think could be one of the most tedious?*

Pradnya - *That's right, it's taking and managing attendance in classrooms with hundreds of students.*

Owais - *And this is where we step in with 'Presence' – an efficient assistant for a teacher's needs. Presence uses progressive facial recognition technology to automate attendance, saving time and reducing errors.*

(Transition to **Pradnya**)

Pradnya's Section

- **Slide 3 - Project Introduction**
    - "Our project, Presence, revolves around some key components. First, it uses the **ResNet50 model**, a deep learning architecture, which ensures accuracy in real-time recognition. Next, we built a **web interface** that's easy for teachers to use and manage attendance. Behind the scenes, we've implemented **dynamic database management**, where attendance is updated automatically, and **real-time image processing** to instantly recognize and log student attendance."

- **Slide 4 - Justification for Title**
    - "Now, why did we choose this project? Traditional attendance methods are time-consuming and prone to errors, making automation crucial. By leveraging advancements in facial recognition, our system simplifies attendance tracking and gives teachers more time to focus on teaching."

- **Slide 5 - Problem Statement**
    - "The problem we're addressing is the inefficiency and errors in traditional attendance systems. We solve this by automating the

process with facial recognition technology using the **ResNet50 model**, which identifies students in real-time. Our **user-friendly interface** allows teachers to conduct sessions with ease, and all records are **dynamically updated** in the system's backend for accuracy."

(Transition to **Sahil**)

Sahil's Section

- **Slide 6 - Literature Review**
  - "We referenced several research papers, such as **ResNet: Deep Residual Learning** and **AttenFace: A Real Time Attendance System**, to build our model."

- **Slide 7 - Process Flow**
  - "Let's walk through the **process flow** of our system, which consists of 8 key steps:
    - **User Interface Interaction**:

      The system begins with the user selecting the relevant class and subject for attendance.

    - **Image Capture**:

      Once the session starts, the webcam activates to capture the images of students entering the classroom using face_recognition library provided by OpenCV.

    - **Pre-processing**:

      The captured images undergo pre-processing to enhance the model's robustness. This includes resizing the images and applying **data augmentation techniques** such as random cropping, flipping & gaussian blur to improve the model's accuracy during recognition.

    - **Facial Recognition**:

      The pre-processed images are passed through the **ResNet50 model** for facial recognition. The model extracts facial features using convolutional layers and then compares these features to the stored images in the database to identify the student.

        - **Attendance Marking**:

          Once the system recognizes a student, their attendance is automatically marked in the system. The system is built to ensure that even if multiple images of a student are captured, their attendance is only counted once per session.

        - **Dynamic Record Updating**:

          The system then updates the attendance record in real-time, reflecting it in the backend CSV file.

        - **Overview Display**:

          After the session ends, teachers can view an **overview** of the session.

        - **Data Analysis**:

          Lastly, the attendance data can be analyzed over time."

- **Slide 8 - Expected Results**
    - "The expected outcomes of our system include:
        - **High Accuracy**:

          The **ResNet50 model** achieves high accuracy, recognizing student faces with a precision of **88.57%** after extensive training. On smaller datasets, it can reach up to **97%** accuracy, ensuring reliable identification.

        - **Automated Record Updates**:

          Our system eliminates the need for manual attendance updates.

        - **Enhanced User Experience**:

          The web interface is designed to make the process smooth for educators.

        - **Insightful Data Analysis**:

          The system provides teachers with comprehensive insights into attendance trends.

        - **Real-Time Attendance**:

          With the use of this system no time is wasted compared to traditional roll-call methods.

(Transition to **Owais**)

Owais's Section

- **Slide 9 - Prototype Overview Part 1**
  - "This slide shows two important components of our prototype:
    - **Records Page**:

      The image on the left represents the **Records page**, which displays detailed biodata of students including their name, roll number, and attendance for 11 subjects. You can select the class from the dropdown, and the relevant records will update dynamically.

    - **Database Page**:

      On the right, we have the **Database page**, where student details such as their image, name, roll number, and registration number can be edited. This page also allows users to search for students and even create new profiles. All updates are reflected immediately in the system's database."

- **Slide 10 - Prototype Overview Part 2**
  - "Here's the second part of our prototype:
    - **Conduct Page**:

      The image on the left shows the **selection menu** for conducting a session. Teachers can select the class and subject for which they want to conduct the attendance. The number of lectures for each subject is updated dynamically.

    - **Session Interface**:

      The image on the right shows what happens once the session starts. The system activates the webcam and begins capturing student images, placing a bounding box around each face. These images are stored in the 'present' folder, and after the session ends, teachers can view a summary of attendance. Importantly, the system ensures that even if multiple images of the same student are captured, their attendance is only marked once."

- **Slide 11 - Work Plan**
    - "Our project followed a structured timeline. Starting in **July** with a literature review and requirement analysis, we moved into the design phase. By **August**, we completed the design and began implementation. In **September**, we conducted thorough testing, and by **October**, we finalized debugging and prepared the final report."

- **Slide 12 - References** "These are the references that guided our project, including research on **ResNet** and facial recognition."

Conclusion

"In conclusion, Presence is fast, accurate, and gives teachers more time to focus on teaching rather than administration.

Thank you for your time!"